

Technical Specifications

MOBOTIX MOVE 2MP Low-Light Flush-Mount Video Analytics Speed Dome

Supported by high-performance DNN processor/SoC in combination with state-of-the-art CMOS video sensor, the indoor MOBOTIX MOVE 2MP Low-Light Flush-Mount Video Analytics Speed Dome is much more than just standard, providing crisp, noise-free and smooth video streaming at full HD 2MP resolution even under extreme low-light conditions. The integrated DNN-based video analytics functions include face and license plate recognition that can be combined with preset PTZ positions to enable a wide variety of 24/7 video surveillance applications.

- High light sensitivity: 0.01 Lux color, 0.001 Lux B/W
- 30x motorized zoom/focus lens 4.3 to 129 mm
- WDR up to 130 dB
- Quad streaming H.264/H.265/MJPEG
- Intelligent encoding, smart lowbitrate control
- MOBOTIX MxMessageSystem
- 2D & 3D motion-compensated noise reduction (MCTF)
- ONVIF Profile S/G/T/M support
- Electronic image stabilizer (EIS)
- Auto object tracking, DNN-based (persons, vehicles)
- DNN video analytics (8 VA, Face & ALPR) linkable to PTZ presets & smart event functions
- Smart Event Functions
- microSD/SDHC/SDXC card support up to 1 TB
- Dual power support (IEEE802.3at/AC24V)
- Temp. Range -40 to 55 °C/-40 to 131 °F







Beyond **Human Vision**

MOBOTIX MOVE

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High-Quality DNN Edge Video Analytics



The latest computer vision technology makes the DNN-accelerated video processing engine efficient at the edge. This integrated engine provides high accuracy, real-time object tracking, and 10 (DNN-based) video analytics functions including ALPR and human face recognition. Moreover, it allows simultaneous detection on multiple objects.

Product Information

Product Name	2MP Low-Light Flush-Mount Video Analytics Speed Dome
Order Code	Mx-SD2A-230-LL-FM-VA

Hardware Design

Processor	Ambarella CV25 (Quad-core ARM® Cortex®-A53, 1 GHz)
Memory	RAM: 512 MBytes
	FLASH: 256 MBytes
Image Sensor	2MP, 1/2.8" Progressive CMOS IMX662 (SONY STARVIS 2)
Effective (Used) Pixels	1920x1080 (2MP)

Lens

Minimum Illumination	Color: 0.01 Lux B/W: 0.001 Lux F1.6, AGC=on, 30 IRE, 1/1 s
Lens Characteristics	Zoom Lens: Zoom, Auto Focus, P-IRIS, Auto-IRIS Focal Length: 4.3 to 129 mm Aperture: F1.6 – F4.7 Horizontal Field of View: 59.3° (Wide), 2.3° (Tele) Vertical Field of View: 34.9° (Wide), 1.4° (Tele)

Camera

Shutter Speed (Auto)	1 to 1/10000 s
Shutter Speed (Manual)	WDR: 1/37500 s Linear: 1/75000 s
Shutter Priority Mode	Up to 1/45 s
Frame Rate (maximum)	WDR on/off: H.265/H.264: 2MP@30 fps MJPEG: 1080p@30 fps
Auto Gain	Min. gain: 3 dB, max. gain: 48 dB, step size: 3
WDR	Up to 130 dB
Electronic Image Stabilizer (EIS)	Yes
Auto Object Tracking	On/off (object-based DNN algorithm: humans/vehicles selectable)
Zoom	Optical: 30x, Digital: 10x
Image Settings	Color, Brightness, Sharpness, Contrast, White Balance, Exposure Control, 2DNR, 3DNR, NR by Motion, Masking, Text Overlay
Image Rotation	90°, 180°, 270°
Servo Feedback	Yes

PTZ Features

Preset positions	Up to 256 positions, 1 Home position
Sequences	Up to 8 sequences with 64 preset positions each
Cruise Paths	Up to 8
Auto Pan Paths	Up to 4
Display Position	Pan/Tilt degrees can be displayed in live image
Pan Range	360° endless
Tilt Range	-10° to +100°
Pan Speed	Manual Pan Speed: 0.1°–90°/s Preset Pan Speed: 400°/s
Tilt Speed	Manual Tilt Speed: 0.1°–55°/s
	Preset Tilt Speed: 300°/s
Joystick/Keyport Control	RS485 protocols DSCP, Pelco-D and Pelco-P
Video Analytics	Presets can be combined with 1 selectable integrated video analytics feature

Video Codec

Compression/Encoding	H.265/H.264/MJPEG
Streaming	Up to 4 individually configurable streams in H.264/H.265/MJPEG; configurable resolution, frame rate, bandwidth LBR/VBR/CBR in H.265/H.264.

Audio Codec

Compression/Encoding	G.711/G.726/AAC/LPCM
Streaming	Bi-directional
Audio Input	Line In Max. 2.28 V_{pp} for line signal Input impedance: 33 $k\Omega$
Audio Output	Line Out

Cyber Security Features

Password Protection	Yes (including "forced" password change during initial setup)
IP address filtering	Yes (to restrict unauthorized access based on IP addresses)
IEEE 802.1X network access control	Yes (for advanced network security and authentication)
Digest authentication	Yes (for secure user authentication)
Secure Boot	Yes (support of fixed IP setting and automatic DHCP IP configuration according to individual MAC address)
AES encryption for password protection	Yes (to ensure strong encryption for password storage)
HTTPS/SSL (using TLS)	Yes (TLS 1.2 default, TLS 1.0/1.1 optional selectable)
User and Group Management	Yes (for fine-grained access control)
VPN	Yes (to establish secure network connections)
Digitally signed firmware	Yes (to prevent firmware file tampering)
RSA encryption	Yes (to support stronger ciphers; supported: RSA (2048 bits), AES-128, AES-256, SHA-256, SHA-384)

Network

Interface	10/100 Mbps Ethernet
Supported Protocols	ARP, PPPoE, IPv4/v6, ICMP, IGMP, QoS, TCP, UDP, DHCP, UPnP, SNMP, SMTP, RTP, RTSP, HTTP, HTTPS, FTP, NTP, DDNS, SMBv2, VPN
ONVIF conformance	Supports profiles S/G/T/M
Supported Browsers	All current browsers are supported.

System Integration

Base Video Analytics	Motion detectionAudio detection
Enhanced DNN-Based Video Analytics	Abandoned objectsIntrusion (object classification/filtering for people, vehicles, etc.)

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(linkable to PTZ presets)	 Sabotage Wrong direction Loitering (object classification/filtering for people, vehicles, etc.) Object counting (object classification/filtering for people, vehicles, etc.) Object removal Stopped vehicle (object classification/filtering) 2 analytics functions can be activated simultaneously
Enhanced DNN-Based Video Analytics (linkable to PTZ presets)	 Face Recognition (incl. gender & age estimation) Number Plate Recognition – supported countries: Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Moldova, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, Turkey, Ukraine, United Kingdom, Uzbekistan, Vietnam
Event Triggers	 External input Analytics Network failure detection Periodical event Manual trigger MxMessageSystem messages
Event Actions	 External output activation Video and audio recording to edge storage File upload: FTP, network share and email Notification: HTTP, FTP, email MxMessageSystem messages

General

Housing Materials	Metal and plastic
Housing Color	RAL 9003
Power Requirements	PoE+ IEEE802.3at, class 4, max 17.71 watt AC24V, max 17.10 watt, max 32.67 VA
PoE Modes Supported	Mode A or Mode B
Connectors	 RJ45 4 x Alarm in, 2x Alarm out, Audio in, Audio out, RS485 terminal block AC24V terminal block CVBS connector (available with max. 2 activated streams)
Video Storage	Micro SD/SDHC/SDXC card support up to 1 TB (using SD card adapter), Support for recording to NAS, MOBOTIX HUB, MOBOTIX MOVE NVR
Remotely Upgradable	Yes
Operating Temperature	–40 to 55 °C/-40 to 131 °F
Relative Humidity	90 % non-condensing
Storage Conditions	–20 to 70 °C/–4 to 158 °F
Approvals	EMC: CE, FCC, BIS Safety: LVD
MTBF	50,000 hours
Warranty	5 years; mechanically wearable parts (motor, gears, belts, etc.) excluded
Dimensions	ø 212 x 264 mm (overall) ø 212 x 103 mm (visible)
Weight	2700 g

NOTE! Observe the <u>MOBOTIX MOVE Installation Hints</u> document to ensure optimum performance of the camera features.

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Alarm Input/Output Current and Voltage

Alarm In	Alarm Out
5 V with 10 $k\Omega$ pull up, 50 mA	400 V DC/AC, 120 mA

DORI Specifications

In the video surveillance context, "DORI" stands for Detection, Observation, Recognition and Identification and is based on IEC EN62676-4: 2015. These levels define the minimum pixels that a face of a person must have to provide proper identification, for example.

- **Detection:** Up to this distance, you can reliably determine if a person or vehicle is present.
- **Observation:** Up to this distance, you can see characteristic details of an individual, such as distinctive clothing.
- **Recognition:** Up to this distance, you can determine with a high degree of certainty whether an individual is the same as someone that has been seen before.
- Identification: Up to this distance, you can determine the identity of an individual beyond reasonable doubt.

DORI Level	Det	ection	Obse	ervation	Recognition		Identification	
Camera	Wide	Tele	Wide	Tele	Wide	Tele	Wide	Tele
Mx-SD2A-230-LL-	71 m/	1768 m/	28 m/	702 m/	14 m/	354 m/	7 m/	177 m/
FM-VA	233 ft	5801 ft	92 ft	2303 ft	46 ft	1161 ft	23 ft	581 ft

Dimensions

NOTE! Download the drilling template from the section or on the MOBOTIX website: www.mobotix.com Support > Download Center > Marketing & Documentation > Drilling Templates.

CAUTION! Always print or copy the drilling template at 100% of the original size!

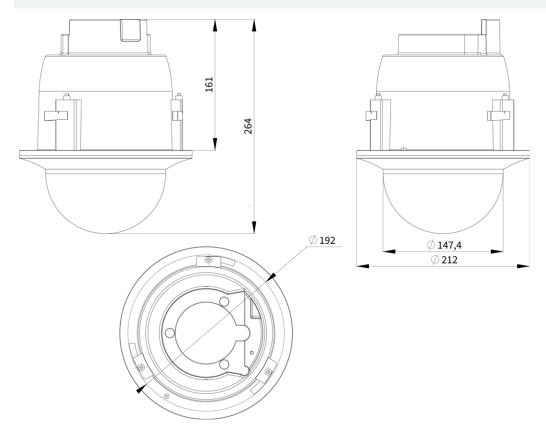


Fig. 1: Mx-SD2A-230-LL-FM-VA: All measurements in mm

Accessories for Speed Dome Cameras

Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
	mount for MOVE Speed Dome/Vandal Turret cameras.	All MOVE Speed Dome/Vandal Turret cameras. Requires Mx-M- SD-W or Mx-M- SD-WL.	SPCC steel, ham- mer-blow painted RAL9003	2.17 kg
Mx-M-SD-C		caution! Cannot be used with MX-M-SD-WM!		
	Weatherproof pole mount for MOVE Speed Dome/Vandal Turret cam- eras.	All MOVE Speed Dome/Vandal Turret cameras. Requires Mx-M- SD-W or Mx-M- SD-WL.	Zinc-galvanized SECC steel, powder-coated RAL9003	1.58 kg
		caution! Cannot be used with MX-M-SD-WM!		
Mx-M-SD-P				

Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight	
	Weatherproof pole mount for MOVE Speed Dome/Vandal Turret cam- eras for extreme con- ditions .	All MOVE Speed Dome/Vandal Turret cameras. Requires Mx-M- SD-W or Mx-M- SD-WL.	Stainless steel 3 mm, white	1.23 kg	
		caution! Cannot be used with MX-M-SD-WM!			
MX-MH-SecureFlex-ESWS					
	Weatherproof wall mount for MOVE Speed Dome/Vandal Turret cam- eras.	Dome/Vandal	Die-cast ADC12 aluminium alloy, hammer- blow painted RAL9003	0.84 kg	
Mx-M-SD-W					
Mx-M-SD-WL	Extended weatherproof wall mount for MOVE Speed Dome/Vandal Turret cameras.	All MOVE Speed Dome/Vandal Turret cameras. Can be combined with Mx-M-SD-C or Mx-M-SD-P.	Die-cast ADC12 aluminium alloy, hammer- blow painted RAL9003	1.5 kg	

Picture/ **Order Code**



Weatherproof wall mount All MOVE Speed for MOVE Speed Dome/Vandal Turret cam- Turret cameras. eras. Can also be moun-

Description

ted on top of wall mount junction box MX-M-SD-WMJB.

Compatible **Products**

Dome/Vandal

NOTE! Can be combined with MX-M-SD-WMJB (wall mount is mounted on top of junction box).

Material/ Weight Color Die-cast ADC12 1.3 kg aluminium

alloy, RAL9003







MX-M-SD-WMJB

Weatherproof wall mount All MOVE Speed junction box (IP66) for MOVE Speed Dome/Vandal Turret cameras.

Allows for comfortable cabling and installation of additional HW equipment such as PoE Injectors, lightning protection, etc.

Dome/Vandal Turret cameras.

CAUTION!

Only to be used as base for Mx-M-SD-WM (wall mount is mounted on top of junction box).

Bracket: Steel, 4.8 kg powder-coated RAL9003

Junction box: Die-cast ADC12 aluminium alloy, RAL9003

Description

Picture/ Order Code



Pendant mount kit incl. base mount, 25 cm/10 in pendant pipe, installation materials and safety wires 50 cm/20 in & 1 m/39 in.

Compatible
ProductsMaterial/
ColorWeightAll MOVE SpeedDie-cast ADC101.58 kgDome/Vandal
Turret cameras.aluminiumTurret cameras.alloy, powder-coated RAL9003

MX-M-SD-PM



Extension pipe Extends MX-M 25 cm/10 in for MX-M-SD- SD-PM; max. PM. extended total

Extends MX-M-SD-PM; max. extended total length is 1 m/39 in (3 extensions).

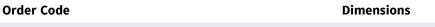
Die-cast ADC10 0.8 kg aluminium alloy, powdercoated RAL9003

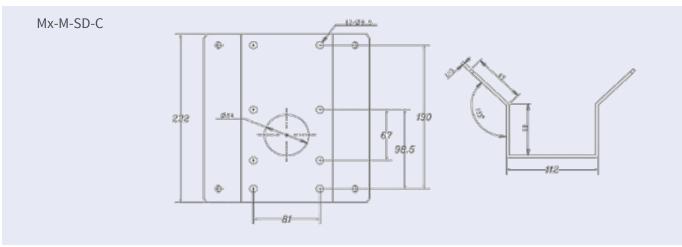
MX-M-SD-PMEXT

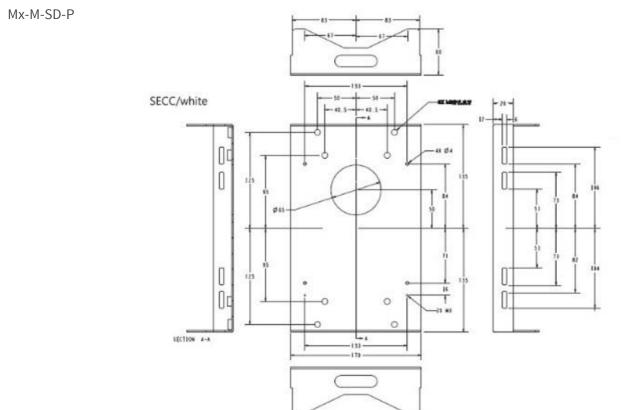
Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
MX-M-SD-GN	Weatherproof parapet mount (goose neck; IP66) with integrated junction box for MOVE Speed Dome/Vandal Turret cameras. Integrated junction box allows for comfortable cabling and installation of additional hardware equipment such as PoE Injectors, lightning protection, etc.	Turret cameras.	Bracket and goose neck: Steel, powder- coated RAL9003 Junction box: Die-cast ADC12 aluminium alloy, RAL9003	14.8 kg
Mx-A-SD-DCS	Tinted replacement dome for MOVE Speed Dome cameras SD-230 and SD-330.	All MOVE Speed Dome (SD) cam- eras SD-230 and SD-330.	Ring: Die-cast ADC12 alu- minium alloy, powder-coated RAL9003 Dome: Polycar- bonate, tinted	0.3 kg
	Clear replacement dome for MOVE Speed Dome cameras SD-230 and SD- 330.	All MOVE Speed Dome (SD) cam- eras SD-230 and SD-330.	Ring: Die-cast ADC12 alu- minium alloy, powder-coated RAL9003 Dome: Polycar- bonate, clear	0.3 kg
Mx-A-SD-DCT				

Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
Mx-A-SD-DBC-EC	Clear EverClear-coated replacement dome for MOVE Speed Dome cameras SD-230 and SD-330.	All MOVE Speed Dome (SD) cam- eras SD-230 and SD-330.	Ring: Die-cast ADC12 alu- minium alloy, powder-coated RAL9003 Dome: Polycar- bonate, clear	0.58 kg
MOBOTIX	Tinted EverClear-coated replacement dome for MOVE Speed Dome cameras SD-230 and SD-330.	All MOVE Speed Dome (SD) cam- eras SD-230 and SD-330.	Ring: Die-cast ADC12 alu- minium alloy, powder-coated RAL9003 Dome: Polycar- bonate, tinted	0.58 kg
MX-A-SD-DBT-EC				

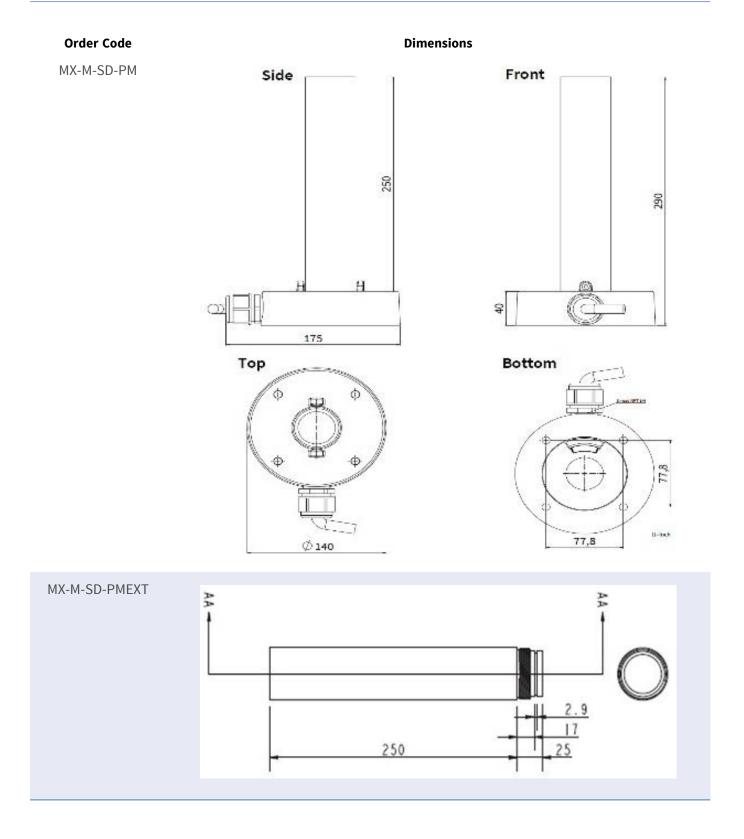
Dimensions

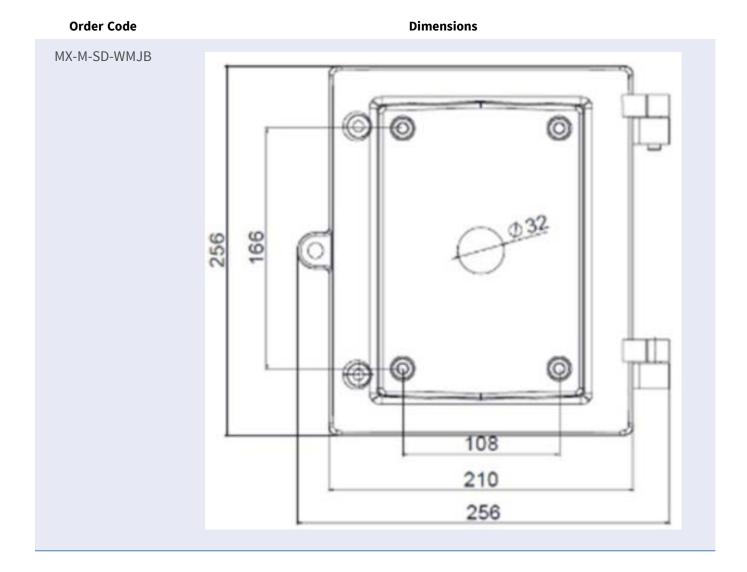






Order Code Dimensions Mx-M-SD-W -NPT THREAD | 1/2° LENGTH=30mm 76.2 R4.25 104 Mx-M-SD-WL 348,00 104,00 16,50 -ф--ф-98,50 138,57 -ф-81,00 MX-M-SD-WM 140 108 249 0 0 MG 1 1/2"PF 167 200 58 0100 0





Accessories for All Cameras

Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
MX-NPA-UPOE1A-60W	UPoE Power Injector 60W. PoE++ 60W Network Power injector • AC Input Voltage: 100 to 240 VAC (50 to 60Hz) • AC Input Current: 1.5A @100-240 VAC • Operating Ambient Temperature: • -10° to 40°C @60W • -10° to 50°C, humidity 10 to 90% @30W • IEEE 802.3bt compliant • Output power of 60W over 4-pairs • Supports 10/100/1000Base-T applications • Plug-and-play installation • Full Protection OVP, OCP• Supports 10/100/1000Base-T applications.	All cameras.	Plastic housing, black	0.45 kg
Mx-A-ETP1A-2601-SET	Media converter set Ethernet (PoE+) – Twisted-Pair. Complete set consisting of two two-wire transmit/receive units for establishing an Ethernet transmission path via twisted-pair cables. • Transmission of Ethernet and PoE+ power supply via two-wire line according to IEEE1901. • Simple connection of 10/100 Mbps Ethernet end devices • Max. 95 Mbps transmission bandwidth, range up to	All cameras. Requires Mx-A- ETP1A-2601- POW.	Plastic hous- ing, black	0.368 kg

Picture/	Description	Compatible	Material/	Weight
Order Code		Products	Color	
	600 m/656 yd for data only,			
	300 m/328 yd for PoE depend-			
	ing on the quality of the twis-			
	ted-pair link • 128 bit AES			
	network data encryption •			
	Power supply 2-wire trans-			
	mitter (Tx) and receiver (Rx) as			
	well as end device via PoE+			
	network switch or external			
	power supply 56VDC / 1.2A			
	(not included!) • Connected			
	end devices are supplied via			
	PoE switch IEEE802.3af(PoE),			
	IEEE802.3at (PoE+), UPoE up			
	to 60W (requires ext. power			
	supply unit). • Status LEDs			
	(data, power supply, data			
	link, PoE) • Integrated Over-			
	voltage protection (IEC 61000-			
	4-5 4kV(1.2 / 50us), 2kA(8 /			
	20us)) • Power Supply: TX: T-			
	Linx or DC12V~57V, RX: PoE			
	Switch or DC48V~57V • Oper-			
	ational temperature: -20 to			
	60°C • Dimensions: 80.4(L) x			
	61.6(W) x 24(H)mm • Weight:			
	RX/TX: 102g • Warranty: 2			
	years			

Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
Mx-A-ETP1A-2601-POW	Plug-type power supply for Mx-A-ETP1A-2601-SET. Output: 57V DC +/-3% / 1.2 A • Input: 90-260V AC (47-63Hz) • 68,4 Watt • Operating Temperature: 0-40°C/32-122°F	Mx-A-ETP1A- 2601-SET	Plastic housing, black	0.49 kg
W. in	MOBOTIX USB Keyboard with PTZ Joystick & Jog-Shuttle. USB control panel for operating MOBOTIX MxMC 2.6 and higher and MOBOTIX HUB incl. Control of software PTZ and motorized PTZ cameras and	All cameras. Requires Windows or macOS computer with USB 2.0 or better.	Plastic hous- ing, black	1.9 kg
Mv_A_KRD1A_PT7_ IOG	pan/tilt devices • Integrated 3-			

Mx-A-KBD1A-PTZ-JOG

pan/tilt devices • Integrated 3axis joystick • Integrated jog shuttle • 38 control keys with backlight predefined for MxMC functions or freely definable for MOBOTIX HUB • Integrated alarm buzzer • Suitable for operation as HID device on MOBOTIX VMS with Windows and MAC based operating systems via USB 2.0 • Suitable for right- and left-handed users • Power supply: USB, max. 350 mA • Operating temperature:

0°-45°C/32-113 °F.

Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
	MOBOTIX network switch for DIN (top-hat) rail mounting. 5x RJ45 port with 100 MBit/s (1x uplink, 4x PoE+ with max. 75 W). Supply: 48 V DC, max. 75 W. Simplified cabling for door stations due to available connectivity for anti-theft protection, door opener and	All cameras.	Plastic hous- ing, gray	0.31 kg
MX-SWITCH1	MxBus. MxBus, anti-theft pro- tection, door and lock contact can be connected via separate wires of Ethernet cable.			

Further Reading



